

## **RESPONSE**

### **A. Status of the Claims**

As an initial point, Applicants respectfully point out that the Restriction Requirement incorrectly states that claims 21-67 are pending. Claims 1-21 were canceled in the Preliminary Amendment filed with the application; therefore, claims 22-67 were pending at the time of the Restriction Requirement.

Claims 47-67 are provisionally withdrawn from consideration at this time in view of the election of the Group I invention made below, *with traverse*, in response to the Restriction Requirement. Therefore, claims 22-46 are presently under consideration in the case. Further, if Applicants' traversal of the Restriction Requirement is accepted, then claims 47-67 are also under consideration.

### **B. Response to Restriction Requirement**

In response to the restriction requirement, Applicants elect, *with traverse*, to prosecute the Group I invention, as exemplified by claims 22-46, drawn to a method.

Applicants contend, without prejudice, that both Groups I and II, as set forth in current claims 22-67, should be examined in the instant application, for the reasons below.

#### **1. The PCT Rules are Applicable.**

The restriction requirement argues that Groups I and II do not relate to a single general inventive concept as required by PCT Rule 13.1, because they lack the same or corresponding special technical features as required by PCT Rule 13.2. This is not the case.

The inventions listed as Groups I and II relate to a single general inventive concept under PCT Rule 13.1 because they share at least one special technical feature that defines a contribution over the prior art (PCT rule 13.2). Specifically, the Group I and II claims share the special technical feature of both requiring a silicon oxyfluoride layer stabilized by a SiO<sub>2</sub> and/or

metal oxide protective layer deposited by vapor phase deposition under ion assistance or by cathodic sputtering/oxidation.

The expression “special technical features” is defined in Rule 13.2 as meaning those technical features that define in each claim a contribution which each of the inventions makes over the prior art (PCT Guidelines 10.01). Additionally, whether or not any particular technical feature makes a “contribution” over the prior art, and therefore constitutes a “special technical feature,” has to be considered with respect to novelty and inventive step (PCT Guidelines 10.02). Only then is it possible to decide whether or not a common special technical feature within the meaning of Rule 13.1 PCT and Rule 13.2 PCT exists for different inventions. Where, as in this case, there is no showing in the Restriction Requirement that a special technical feature of the process or product claims lacks novelty and/or non-obviousness, then it is not proper to state that there is no special technical feature linking the claims.

Whether or not any particular technical feature makes a “contribution” over the prior art, and therefore constitutes a “special technical feature,” has to be considered with respect to novelty and inventive step (PCT Guidelines 10.02).

## 2. Analysis of EP 0 975 017.

The restriction requirement cites EP 0 975 017 (“the ‘017 patent”) as suggesting the common elements of the Group I and Group II claims. This is not the case.

The ‘017 patent appears to describe the manufacture of semi-conductor devices having antireflection properties. The ‘017 patent aims at avoiding diffusion of fluorine out of the silicon oxyfluoride layers ( $\text{SiO}_x\text{F}_y$ ) toward the upper layers, in particular toward conductive layers.

The ‘017 patent appears to suggest that protecting  $\text{SiO}_x\text{F}_y$  layers, called FSG layers in this document, is classically performed by deposition onto this layer of a silica layer. However, this solution is unsatisfactory according to the ‘017 patent, since fluorinated products diffuse well

into silicon dioxide films, with a diffusion length that can be higher than several thousand angstroms (§ 16, § 39 L. 6). Typically, the  $\text{SiO}_x\text{F}_y$  layer is deposited onto a semi-conductor substrate and is coated with a  $\text{SiO}_2$  layer deposited by plasma enhanced chemical vapor deposition ("PECVD") (§ 39), which is then polished and either coated with a second  $\text{SiO}_2$  layer or plasma treated (§ 19).

Although two  $\text{SiO}_2$  layers are present, the inventors of the '017 patent have noted that fluorine diffusion out of the  $\text{SiO}_x\text{F}_y$  layer was not avoided (§ 47). The '017 patent suggests that this problem can be solved (§ 21, 48, 63) through the replacement of the  $\text{SiO}_2$  protective layer, which is traditionally used, with a  $\text{SiO}_x\text{N}_y$  layer having a thickness of 10-200 nm (§ 60). A  $\text{SiO}_2$  layer may be interleaved between the  $\text{SiO}_x\text{F}_y$  layer and the  $\text{SiO}_x\text{N}_y$  layer (§ 30). Said  $\text{SiO}_2$  layer is preferably polished before being coated with said  $\text{SiO}_x\text{N}_y$  layer. This  $\text{SiO}_2$  layer has a thickness of 0-2000 nm (§ 60) and does not have a protecting role, but is rather used for "gap-filling, spacing and planarizing" (§ 26). All the above layers are deposited by PECVD (§ 52, 59).

### 3. A Special Technical Feature is Patentable over the '017 Patent.

The Group I invention, as exemplified by independent claim 22, and the Group II invention, as exemplified by independent claim 47, both recite that a protective layer of  $\text{SiO}_2$  and/or metal oxide be via either an ion beam-assisted vapor phase deposition or a cathodic sputtering of a metal or silicon followed by an oxidation step of the deposited metal or silicon layer.

The '017 patent, does not disclose either forming a protective layer by ion beam-assisted vapor phase deposition or forming a protective layer by cathodic sputtering. In this regard, the PECVD method disclosed in the '017 patent is not an ion assistance technique (IAD or IBAD for ion beam assisted deposition). Rather, IAD and IBAD are defined in Applicants' application and

claim 22 as involving: “bombarding the SiO<sub>2</sub> silica and/or metal oxide layer, during its formation, by a beam of positive ions derived from a rare gas, from oxygen or from a mixture of two or more of such gases.” Although the ‘017 patent might contemplate deposition of a SiO<sub>2</sub> layer onto a silicon oxyfluoride layer, it does not suggest the use of an ion beam formed from a rare gas or oxygen so as to bombard said SiO<sub>2</sub> layer while it is being formed. Therefore, the PECVD technique disclosed in the ‘017 patent does not destroy novelty of the special technical feature of Group I and Group II.

Additionally, the ‘017 patent does not in any way render obvious or destroy an inventive step for the special technical feature of Group I and Group II. The ‘017 patent in no way suggests the need for ion assistance or cathodic sputtering/oxidation to protect a SiO<sub>x</sub>F<sub>y</sub> layer with one or more SiO<sub>2</sub> layers deposited, for example by PECVD. Since the ‘017 patent does not teach using ion assistance during a vapor phase deposition or cathodic sputtering followed by oxidation to stabilize a silicon oxyfluoride layer, Group I and Group II claims are not made obvious by the ‘017 patent. Therefore, the ‘017 patent in no way suggests the special technical feature of Group I and Group II.

4. There is Unity between the Group I and Group II Claims.

Seeing that the objects of claims 22 and 47 are patentable over the ‘017 patent, a technical relationship exists between the inventions listed as Groups I and II involving identical or corresponding special technical features. The unity of invention requirement is fulfilled.

In view of the above, the “inventions” set forth in Groups I and II have a common inventive concept as required by PCT Rule 13.2, and Applicants request withdrawal of the Restriction Requirement and examination of all pending claims in the present case.

5. There is No Serious Burden in Examining Groups I and II Together.

Additionally, examination of all of the claims of Groups I and II should be performed together because a corresponding search would not present a “serious burden” on the examiner. MPEP § 803 (“If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions”). Given the fact that there is a common inventive concept between the all of the present claims, Applicants submit that there is no “serious burden” in examining the Group I and II inventions together in this case. Further, the examiner has provided no evidence of any serious burden.

In traversing the Restriction Requirement on the grounds set forth above, Applicants specifically take no position with regard to whether any sets of the present claims or any individual present claims are or are not patentably distinct from any other set of claims or individual claim. Rather, Applicants argue without acquiescence that, under the circumstances of this case and in view of the applicable PCT rules and statements of the MPEP, the stated restriction is not proper, whether those claims are patentably distinct or not. Such arguments do not create an estoppel against Applicants and are not an admission that the restricted Groups are either patentably distinct or patentably indistinct from one another.

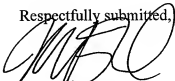
In view of the above, Applicants request withdrawal of the Restriction Requirement and examination of all pending claims in the present case.

**C. Conclusion**

Applicants believe this paper to be a full and complete response to the Restriction Requirement dated February 13, 2007. Applicants respectfully request favorable consideration of this case in view of the above comments and amendments. Should the Examiner have any

questions, comments, or suggestions relating to this case, the Examiner is invited to contact the undersigned Applicants' representative at (512) 536-3035.

Respectfully submitted,



Mark B. Wilson

Reg. No. 37,259

Attorney for Applicants

FULBRIGHT & JAWORSKI L.L.P.  
600 Congress Avenue, Suite 2400  
Austin, Texas 78701  
512.536.3035 (voice)  
512.536.4598 (fax)

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